

Claims

1. Catalyst composition represented by the general formula



wherein

RE is at least one of the group of rare earth metals Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb in an amount of up to 6.0 wt.-%;

V is vanadium in an amount of 0.2-2.5 wt.-%;

O is oxygen in an amount of up to 3.5 wt.-%; and

S is a support containing TiO_2 in an amount of at least 70 wt.-%, with the rest being WO_3 and optionally SiO_2 .

2. Catalyst composition according to claim 1, characterized in that RE is at least one of the group of Pr, Sm, Gd, Tb, Dy and Er and particularly one of the group of Sm, Gd, Tb, Dy and Er.

3. Catalyst composition according to claim 2, characterized in that RE is at least one of Er and Tb.

4. Catalyst composition according to any of claims 1-3, characterized in that S contains SiO_2 in an amount of 4-12 wt.-%, particularly in an amount of 5-10 wt.-%.

5. Process for the preparation of a catalyst composition, characterized in that a solid support containing TiO_2 in an amount of at least 70 wt.-%, WO_3 in an amount of 5-20 wt.-%, and optionally SiO_2 in an amount of up to 15 wt.-%, is contacted with an aqueous solution containing a vanadium salt and a salt of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb to give a slurry which is brought to dryness and calcined.

6. Process for the preparation of a catalyst composition, characterized in that a solid support containing TiO_2 in an amount of at least 70 wt.-%, WO_3 in an amount of 5-20 wt.-%, and optionally SiO_2 in an amount of up to 15 wt.-%, is contacted with a vanadium salt and a hydroxide of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb to give a slurry which is brought to dryness and calcined.

7. Process for the preparation of a catalyst composition, characterized in that a solid support containing TiO_2 in an amount of at least 70 wt.-%, WO_3 in an amount of 5-20 wt.-%, and optionally SiO_2 in an amount of up to 15 wt.-%, is contacted with a vanadate (REVO_4) of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb to give a slurry which is brought to dryness and calcined.

8. Process according to claim 5, characterized in that the rare earth metal is at least one of the group of Pr, Sm, Gd, Tb, Dy and Er and particularly one of the group of Sm, Gd, Tb, Dy and Er.

9. Process according to claim 6, characterized in that the rare earth metal is at least one of Tb and Er.

10. Catalyst composition obtainable according to a process of one of the claims 5 to 9.

11. Catalyst composition according to claim 10, containing
said rare earth metal in an amount of up to 6.0 wt.-%;
vanadium in an amount of up to 2.5 wt.-%;
oxygen in an amount of up to 3.5 wt.-%;
 TiO_2 in an amount of at least 65 wt.-%,
 WO_3 in an amount of up to 20 wt.-%,
and optionally SiO_2 in an amount of up to 15 wt.-%.